



FIG. 1A

FIG. 1B

CLONE 52

FIG. 1C

CLONE 10

CLONE 5

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FIG. 2A

CCCCGGACTC GACAACATGG CTTCOOOOGCC CCACCAGCAG CTGCTGCATC 50
M A S P P H Q Q L L H H

ACCACAGCAC CGAGGTGAGC TGGACTCCA GGGGGGACAG CAACAGOGTG 100
H S T E V S C D S S G D S N S V

CGCGTCAAGA TCAACCCCAAA GCAGCTGTCC TCCAACAGCC ACOCCAAGCA 150
R V K I N P K Q L S S N S H P K H

CTGCAAATAC AGCATCTCCT CTAGCTGCAG CAGCTCTGGG GACTCOGGGG 200
C K Y S I S S S C S S S G D S G G

GCGTCCCCCG GCGAGTGGGC GCGGGAGGOC GGCTGGGCAG GCAGAAGAAG 250
V P R R V G G G G R L R R Q K K

CTGCCCCAGC TGTTCGACAG GCGCTCCAGC CGCTGGTGGG ACOCCAAGTT 300
L P Q L F E R A S S R W W D P K F

CGACTCGGTG AACCTGGAGG AGGCTGCTT GGAGOGCTGC TTCCCGCAGA 350
D S V N L E E A C L E R C F P Q T

CCCAGOGGCG GTTCGGGTAT GCGCTCTTCT ACATCGGCTT CGCTGCTT 400
Q R R F R Y A L F Y I G F A C L

CTGIGGAGCA TCTATTTTGC GGTCCACATG AGATCCAGAC TGATOGTCAT 450
L W S I Y F A V H M R S R L I V M

GGTGGCCCCC GCGCTGTGCT TCTCTCTGGT GTGTGTGGGC TTCTTTCTGT 500
V A P A L C F L L V C V G F F L F

TTACCTTCAC CAAGCTGTAC GCGCGGCATT ACGGTGGAC CTGCTGGCT 550
T F T K L Y A R H Y A W T S L A

CTCACCTGCG TGGTGTTCGC CCTGACCTTG GCTGGGCAGT TCCAGGTCTT 600
L T L L V F A L T L A A Q F Q V L

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FIG. 2B

GACGCTGTG TCAGGACGG GGCACAGCTC CAACTTACG GCCACAGCCC 650
 T P V S G R G D S S N L T A T A R

GGGCACAGA TACTTGCTTA TCTCAAGTGG GGAGCTTCTC CATGTGCATC 700
 P T D T C L S Q V G S F S M C I

GAAGTGCTCT TTTTGCTCTA TACCGTCATG CACTTACCTT TGTACCTGAG 750
 E V L F L L Y T V M H L P L Y L S

TTTGTGTCTG GGGGTGGGCT ACTCTGTGCT TTTGAGAGACC TTTGGCTACC 800
 L C L G V A Y S V L F E T F G Y H

ATTTCCGGGA TGAAGCTGCT TTCCCTCTGC CCGAGCGCG GGGCTGCAC 850
 F R D E A C F P S P G A G A L H

TGGGAGCTGC TGAGCAGGGG GCTGCTCCAC GGCTGCATCC AGGCATCGG 900
 W E L L S R G L L H G C I H A I G

GGTCACCTG TTCGTTCATGT CCCAGGTGAG GTCCAGGAGC ACCTTCTCTA 950
 V H L F V M S Q V R S R S T F L K

AGGTGGGGCA ATCCATTATG CACGGGAAGG ACCTGGAAGT GGAAAAGGC 1000
 V G Q S I M H G K D L E V E K A

CTCAAAGAGA GGATGATTCA TTCCGTGATG CCAAGAATCA TAGCCGATGA 1050
 L K E R M I H S V M P R I I A D D

CTTAATGAAG CAGGGAGATG AGGAGAGTGA GAATTCGTGTC AAGAGGCATG 1100
 L M K Q G D E E S E N S V K R H A

CCACCTOGAG CCCCAAGAAC AGGAAGAAA AGTCTTCCAT CCAAAAAGCT 1150
 T S S P K N R K K K S S I Q K A

CCTATAGCCT TCCGCCCTTT TAAGATGCAG CAGATCGAAG AAGTCAGTAT 1200
 P I A F R P F K M Q Q I E E V S I

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FIG. 2C

TTTATTTTGA GATATCGTGG GCTTCACCAA GATGAGTGCC AACAAAGTCTG 1250
L F A D I V G F T K M S A N K S A

CCCACGCOCT GGTTGGGTCTC CTGAACGATC TGTTGGGTTCG CTTCGACCGC 1300
H A L V G L L N D L F G R F D R

CTGTGTGAGG AGACCAAGTG TGAGAAAATC AGCACCOCTGG GAGACTGTGA 1350
L C E E T K C E K I S T L G D C Y

CTACTGCGTG GCGGGCTGTG CCGAGCCCCG GCGCGACCAT GCGTACTGCT 1400
Y C V A G C P E P R A D H A Y C C

GCATCGAGAT GGGCTGCGC ATGATCAAGG CCATCGAGCA GTTCTGCCAG 1450
I E M G L G M I K A I E Q F C Q

GAGAAGAAGG AGATGGTGAA CATGAGAGTC GGGGTGCACA CGGGCACCGT 1500
E K K E M V N M R V G V H T G T V

CCTTTGCGGC ATCCTGCGCA TGAGGAGGTT TAAATTTGAC GTGTGGTCCA 1550
L C G I L G M R R F K F D V W S N

ACGATGTGAA CCTGCGCAAT CTCATCGAGC AGCTGGGAGT GCGCGGCAAA 1600
D V N L A N L M E Q L G V A G K

GTTCACATTT CTGAGGOCAC CGCAAAATAC TTAGATGACC GGTACGAAAT 1650
V H I S E A T A K Y L D D R Y E M

GGAAGATGGG AAAGTTATTG AACGGCTGGG CCAGAGCGTG GTTGCTGACC 1700
E D G K V I E R L G Q S V V A D Q

AGTTGAAAGG TTTGAAGACA TACCTGATAT CCGGTCAGAG AGCCAAGGAG 1750
L K G L K T Y L I S G Q R A K E

TCTGCTGCA GCTGTGCAGA GGCTTGCTT TCTGGCTTTG AGGTCATIGA 1800
S R C S C A E A L L S G F E V I D

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FIG. 2D

CGGCTCACAG GTGTCTCAG GCGCTAGGGG ACAGGGGACA GCGTCATCAG 1850
G S Q V S S G P R G Q G T A S S G

GGAATGTCAG TGACTTGGCG CAGACTGTCA AAACCTTTGA TAACTTAAG 1900
N V S D L A Q T V K T F D N L K

ACCTGCCCTT CGTGGGAAT CACATTTGCT CCCAAATCTG AAGCCGGGCG 1950
T C P S C G I T F A P K S E A G A

CGAGGGAGGA GCACCTCAA ACGGCTGCCA AGACGAGCAT AAAACAGCA 2000
E G G A P Q N G C Q D E H K N S T

CCAAGGCTTC TGGAGGACCT AATCCCAAAA CTCAGAACGG GCTCTCAGC 2050
K A S G G P N P K T Q N G L L S

CCTCCCCAAG AGGAGAAGCT CACCAACAGT CAGACTTCTC TGTTGTGAGAT 2100
P P Q E E K L T N S Q T S L C E I

CTTGCAGGAG AAGGGAAGGT GGGCAGGGGT GAGCCTGGAC CAGTCGGCTC 2150
L Q E K G R W A G V S L D Q S A L

TCCTTCCGCT GAGGTTCAAG AACATCCGGG AGAAAACGGA CGCCACITTT 2200
L P L R F K N I R E K T D A H F

GTGGACGTTA TCAAAGAAGA CAGCCTGATG AAAGATTACT TTTTAAAGCC 2250
V D V I K E D S L M K D Y F F K P

GCCATTAAAT CAGTTCAGCC TGAACCTCCT GGATCAGGAG CTGGAGCGAT 2300
P I N Q F S L N F L D Q E L E R S

CCTACAGGAC CAGCTATCAG GAAGAGGTCA TAAAGAACTC CCGGTGAAG 2350
Y R T S Y Q E E V I K N S P V K

ACGTTTGCTA GTCCCACTT CAGCTCCCTC CTGGATGTGT TTCTGTGAC 2400
T F A S P T F S S L L D V F L S T

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FIG. 2E

CACAGTGTTC CTGAAGCTGT CCAACAACTG CTTCTGAAG TACGAGGCGG 2450
 T V F L T L S T T C F L K Y E A A

CCACCGTGCC TCCCCCGCCC GCGGCGCTGG CCGTCTTCAG TGCAGCCCTG 2500
 T V P P P P A A L A V F S A A L

CTGCTGGAGG TGCTGTCCCT CCGGGTGTCC ATCAGGATGG TGTCTTCCT 2550
 L L E V L S L A V S I R M V F F L

GGAGGACGTC ATGGCGTGCA CCAAGCGCCT GCTGGAGTGG ATCGCCGGCT 2600
 E D V M A C T K R L L E W I A G W

GGCTACCACG TCACTGCATC GGGGCCATCC TGGTGTGCGT TCCCGCACTG 2650
 L P R H C I G A I L V S L P A L

GCGGTCTACT CCCATGTAC CTTCCGAATAT GAGACCAACA TACACTTCCC 2700
 A V Y S H V T S E Y E T N I H F P

AGTGTTCACA GGCTCGGCGG CACTGATTGC CGTGTGTGCAC TACTGTAACT 2750
 V F T G S A A L I A V V H Y C N F

TCTGCCAGCT CAGCTCCTGG ATGAGGTCTT CCTCGCCAC CGTGTGGGG 2800
 C Q L S S W M R S S L A T V V G

GCGGGGCGGC TGCTCTGCT CTACGCTCC CTGTGCCAG ACAGTCTGT 2850
 A G P L L L L Y V S L C P D S S V

ATTAACTTCG CCGCTTGAAG CAGTACAGAA TTTCAGTTC GAGAGGAACC 2900
 L T S P L D A V Q N F S S E R N P

CGTGCAATAG TTCGGTGGCG CGTGACCTCC GGCGGCGCG CAGCTCATC 2950
 C N S S V P R D L R R P A S L I

GGCCAGGAGG TGGTCTCGT CTTCTTCTC CTGCTCTTGT TGGTCTGGT 3000
 G Q E V V L V F F L L L L V W F

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FIG. 2F

CCTGAATCGC GAATTTGAAG TCAGCTACCG CCTCCACTAC CACGGAGACG 3050
L N R E F E V S Y R L H Y H G D V

TGGAAGCGGA TCTTCACCGC ACCAAGATCC AGAGCATGCG GGACCAGGCA 3100
E A D L H R T K I Q S M R D Q A

GACTGGCTGC TGAGGAACAT CATCCCTTAC CAAGTGGCTG AGCAGCTGAA 3150
D W L L R N I I P Y H V A E Q L K

GGTGTCCTCAG ACCTACTCCA AGAACCACGA CAGCGGAGGG GTGATCTTCG 3200
V S Q T Y S K N H D S G G V I F A

CCAGCATCGT CAACTTCAGC GAGTTCCTAC AGGAGAACTA CGAGGGCGGC 3250
S I V N F S E F Y E E N Y E G G

AAGGAGTGCT ACCGGGTCTT CAAAGAGCTC ATCGGGGACT TTGAAGAGCT 3300
K E C Y R V L N E L I G D F D E L

CCTAAGCAAG CCGGACTACA GCAGCATCGA GAAGATCAAG ACCATCGGAG 3350
L S K P D Y S S I E K I K T I G A

CCAAGTACAT GCGGGGGTCA GGGCTGAACA CCGCGCAGGC CCAGGAAGGC 3400
T Y M A A S G L N T A Q A Q D G

AGCCACCCGC AGGAGCACCT GCAGATCTTG TTCGAGTTTG CCAAGGAGAT 3450
S H P Q E H L Q I L F E F A K E M

GATCGCGGTG GTGGACGACT TCAACAACAA CATGCTGTGG TTCAACTTCA 3500
M R V V D D F N N N M L W F N F K

AGCTCCGGGT CCGCTTCAAC CATGGGGCCC TCACGGCCGG GGTTCATGGC 3550
L R V G F N H G P L T A G V I G

ACCACCAAGC TGCTGTACGA CATCTGGGGA GACACCGTCA ACATOGCCAG 3600
T T K L L Y D I W G D T V N I A S

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FIG. 26

CAGGATGGAC ACCACCGGCG TGGAGTGGCG CATCCAGGTG AGCGAAGAGA 3650
R M D T T G V E C R I Q V S E E S

GCTACCGCGT CTTGAGCAAG ATGGGCTATG ACTTOGACTA CAGAGGGACC 3700
Y R V L S K M G Y D F D Y R G T

GTGAATGTCA AGGGGAAAGG CCAGATGAAG ACCTACCTGT ACCCAAAGTG 3750
V N V K G K G Q M K T Y L Y P K C

CACGGATCAC AGGGTCATCC CAGCACCAGC TGTCATCTC CCCAGACATC 3800
T D H R V I P A P A V H L P R H P

CGGTCCAGG TGGATGGCAG CATCGGACGG TCTCCACAG ACGAGATTGC 3850
R P G G W Q H R T V S H R R D C

CAACCTGGTG CCTTCTGTCC AGTATGTGGA CAAGACATCT CTGGGTCTTG 3900
Q P G A F C P V C G Q D I S G F

ACAGCAGCAC GCAGGCAAG GATGCCCACC TGTCCCCCAA GAGACCGTGG 3950

AAGGAGCCCG TCAAAGCGA AGAAAGGGGT CGATTGGCA AAGCCATAGA 4000

GAAAGACGAC TGTGACGAA CAGGAATAGA AGAAGCCAAC GAACTCACCA 4050

AGCTCAACGT TTCAAAGAGT GTGTGAGGCG GCGCCACCC GCTGCCCGAG 4100

GTGCTCTGTT TGTCGAAACA CAGTAATATT TGTATTGGC TGTGTGCTT 4150

TCCAAGCGCC ACAGTTGCC TCCCGGACG TGGTGTATG TGGTCATTTC 4200

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FIG. 2H

AGCCCTAACT TCTGTGTGGA TCACAGTTAT TCAGGGTTCA TTTTCATCCA 4250

TTCTTCCCTT TCGCTCCCTT CCCTGGAAAC CCGGCTGGCT CTGGGTTCATC 4300

CGTTCAGCAC GTGGTGGAGA ACAAGTGGCT TCAGGGCTGG CCTCGGCGCTC 4350

GAGTCTGGGG ACAGAGGCGG CCAGTGGAGA TCATGGCTTT GGGTATTATT 4400

TGACTTTTAG AACAAAAGCT GTGGTTAAGA TTCATTTTTT ATTGCTTTTT 4450

CCCACGTCCC ACGAGACACT ATTTTCGGTT CTCTGGCTAA TACCCTGTTT 4500

TTGAGTTTAT TTGTGTTCTG TCTATGTCAC AGTGTCCCCC TACGACCCGA 4550

CCTCTCTATG TAAGCACACA TGCGCACACA CACTTGCAAT CATGAATCTG 4600

ATATAAAGTG CCAGTAATCC GCCAAGAGGG GGTGCGAAGG GGGCATGTCA 4650

CGACAGCTCC GCCACCCCCC ATTGCCCACC CGCACTTTCC CGAGCAACGC 4700

GCCCCGTGGG CTGTGGGTGA GCGGCGCTCC CTGCACTGAG CCGGTTTAGG 4750

GGCTCGCCCA CATGCATGCA GGCCAAGACA GCAAATGCCA GCGGGGCACG 4800

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FIG. 21

ACGCCTGTGT GCCCAGGCT CCGGGGTCTC AGAGCGGCT CTCACCCCG 4850

ACCTTCACC CAGGGGTCTC CCGTCCGGA GTGGAGGCT TGGTCTGGA 4900

AGCTGACTCA TGGAGAGG AAATACCAA TAAACATCCG AGGTTCCAA 4950

AAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAA 4985

FIG. 3D

Human IX	YSIEKIKITI GATYMAASGL NTAQAQCSH PQEHLQILFE FAKEMMRVVD	1150
Mouse IX	YNSIEKIKITI GATYMAASGL NTAQCCQEGEH PQEHLRILFE FAKEMMRVVD	1150
Human IX	DFNNNMLWFN FKLRVGFNHG PLTAGVIGTT KLLYDIWGDV VNIASRMDTI	1200
Mouse IX	DFNNNMLWFN FKLRVGFNHG PLTAGVIGTT KLLYDIWGDV VNIASRMDTI	1200
Human IX	GVECRIQVSE ESYRVLSKMG YDFDYRGTVN VKGKGQMKTY LYPKCTDHRV	1250
Mouse IX	GVECRIQVSE ESYRVLSKMG YDFDYRGTVN VKGKGQMKTY LYPKCTDNGV	1250
Human IX	IF-----AP AVHLP-----RHR-----PG-----	1265
Mouse IX	VPQHQLSISP DIRVQVDGSI GRSEITDEIAN LVPFVQYSDK ASLGSDDDSTQ	1300
Human IX	-----GMQHRTVSHR R-----DQPGAF-- -CPVCGQDIS	1292
Mouse IX	AKEARLSSKR SWREPVKAEERFPFGKAIEK DSCEDIGVEE ASELKLNVS	1350
Human IX	-GF	1294
Mouse IX	KSV	1353

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FIG. 3C

Human IX	800	SLNFLDQELE RSYRTSYQEE VIKNSPVKTF ASPTFSSLLD VFLSTTVFLT
Mouse IX	800	SLNFLDQELE RSYRTSYQEE VIKNSPVKTF ASPTFSSLLD VFLSTTVFLT
Human IX	850	LSITCFLKYE AATVPPPPAA LAVFAAALL EVLSLIVSIR MVFFLEDVMA
Mouse IX	850	LSITCFLKYG AATVPPPPAA LAVFAAALL EVLSLIVSIR MVFFLEDVMT
Human IX	900	CTKRLLEWIA GWLPRHCIGA ILVSLPALAV YSHMTSEMET NIHFVMTFIS
Mouse IX	900	CTKRLLEWIA GWLPRHCIGA ILVSLPALAV YSHMTSEMET NIHFVMTFIS
Human IX	950	AALHVVHYC NFCQLSSWMR SSLATVVGAG HLLIIVSLC HDSSVLTSP
Mouse IX	950	AALHVVHYC NFCQLSSWMR SSLATVVGAG HLLIIVSLC HDSSVLTSP
Human IX	1000	DAVQNFSSER NPCNSSVLPD LRRPASLIGQ EVLMFFLL LLVWFLNREF
Mouse IX	1000	DAVQNFSAQR NPCNSSVLPD LRRPASLIGQ EVLMFFLL LLVWFLNREF
Human IX	1050	EVSYRLHYHG DVEADLHRTK IQSMRDQADW LLRNIIPIYHV AEQLKVSQTY
Mouse IX	1050	EVSYRLHYHG DVEADLHRTK IQSMRDQADW LLRNIIPIYHV AEQLKVSQTY
Human IX	1100	SKNHDSGGVI FASIVNFSEF YEENYEGGKE CYRVLNELIG DFDELLSKPD
Mouse IX	1100	SKNHDSGGVI FASIVNFSEF YEENYEGGKE CYRVLNELIG DFDELLSKPD

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FIG. 3B

Human IX	DEESENSVKR HATSSPKNRK KKSSIQKAPI AFRPFKMQQI EEVSILFADI	400
Mouse IX	DEESENSVKR HATSSPKNRK KKSSIQKAPI AFRPFKMQQI EEVSILFADI	400
Human IX	VGFTKMSANK SAHALVGLLN DLFGRFDRLC EETKCEKIST LGDCYYCVAG	450
Mouse IX	VGFTKMSANK SAHALVGLLN DLFGRFDRLC EETKCEKIST LGDCYYCVAG	450
Human IX	CPEPRADHAY CCIEMGLGMI KAIEQFCQEK KEMVNMRVGV HTGTVLCGIL	500
Mouse IX	CPEPRADHAY CCIEMGLGMI KAIEQFCQEK KEMVNMRVGV HTGTVLCGIL	500
Human IX	GMRRFKFDVW SNDVNLANLM EQLGVAGKVH ISEATAKYLD DRYEMEDGKV	550
Mouse IX	GMRRFKFDVW SNDVNLANLM EQLGVAGKVH ISEATAKYLD DRYEMEDGKV	550
Human IX	IERLGQSVVA DQLKGLKTYL ISGQRAKESR	600
Mouse IX	IERLGQSVVA DQLKGLKTYL ISGQRAKESH	600
Human IX	SGPRGQGTAS SGVSDLAQT VKTFDNLKTC PSCGITFAPK SEAGAEGGAP	650
Mouse IX	SGPRGQGTAS SGVSDLAQT VKTFDNLKTC PSCGITFAPK SEAGAEGGIV	650
Human IX	QNGCQDEHKN STKASGGPNP	700
Mouse IX	QNGCQDEHKT STKASGGPNP	700
Human IX	RWAGVSLDQS ALLPLRFKNI REKTDHFVD VIKEDSLMKD YFFKPPINQF	750
Mouse IX	RWAGVSLDQS ALLPLRFKNI REKTDHFVD VIKEDSLMKD YFFKPPINQF	750

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FIG. 3A

Human	IX	MASPHQQLL HHHSTEVSCD SSGDSNSVRV KINPKQLSSN SHPKHCKYSI	50
Mouse	IX	MASPHQQLL HHHSTEVSCD SSGDSNSVRV KINPKQLSSN SHPKHCKYSI	50
Human	IX	SSSCSSSGDS GMPRRVGGG GRLRRQKKLP QLFRASSRW WDPKFDSMNL	100
Mouse	IX	SSSCSSSGDS GMPRRVGGG GRLRRQKKLP QLFRASSRW WDPKFDSMNL	100
Human	IX	EEACLERCFP QTQRRFRYAL FYMGFACLLW SIYFAVHMRS RIVMVPAL	150
Mouse	IX	EEACLERCFP QTQRRFRYAL FYMGFACLLW SIYFAVHMRS RIVMVPAL	150
Human	IX	CFLVVCVGEF LFTFTKLYAR HYAWTSLALT LLVFALTAA QFQVTPMSG	200
Mouse	IX	CFLVVCVGEF LFTFTKLYAR HYAWTSLALT LLVFALTAA QFQVTPMSG	14/15 200
Human	IX	RGDSSNLTMT ARPDIDICLSQ VGSFSMCIEV LFLLYTVMHL PLYLSLILGV	250
Mouse	IX	RVDSSNLTMT ARPDIDICLSQ VGSFSMCIEV LFLLYTVMHL PLYLSLILGV	250
Human	IX	AYSVLFEFTG YHFRNEICFP SPGFGALHWE LLSRALLHMC IHAIGMHLFV	300
Mouse	IX	AYSVLFEFTG YHFRNEICFP SPGFGALHWE LLSRALLHMC IHAIGMHLFV	300
Human	IX	MSQVRSRSTF LKVGQSIMHG KDLEVEKALK ERMIHVMMPR IIADDLMKQG	350
Mouse	IX	MSQVRSRSTF LKVGQSIMHG KDLEVEKALK ERMIHVMMPR IIADDLMKQG	350

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